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STUDY OF INTERVIEWS (THERAPEUTIC AND INTERROGATIVE) BY OPERANT CONDITIONING METHODS

Final Report

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13. ABSTRACT

This program of work was undertaken to determine whether the procedures, the procedural terminology and the principles of behavior which have been developed in the experimental laboratory using conditioning (respondant and operant) methods are applicable to the analysis of psychotherapeutic operations. Following analysis of recorded interviews the treatment of patients was undertaken in experimental cubicles with one-way viewing screens. It was found that verbal behavior had to be dealt with as an operand and that it conveyed both discriminative and instructional signals. It was also necessary to differentiate factors which maintained the course of the work from the "content" of the work. Psychotherapy could thus be regarded as education in interpersonal relationships. Patients were then treated in terms of their behavioral deficiencies in interpersonal operations. It was assumed that symptoms were maintained by these consequences and that they were given up when the patient developed better methods for attaining those consequences of critical relevance to him. The work reported provides a basis for applying the experimental method to psychotherapy.

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SUMMARY

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FOREWORD

Psychiatry, as all clinical medicine, has suffered throughout its early development from lack of a formal system of description of behavior sufficiently clear and precise to permit replication of experimental or therapeutic operations or reliable comparison of the effects of different situations. Of the behavioral sciences, operant conditioning is the only one which has developed a definite procedure and a procedural language which together provide a comprehensive approach to the study and description of behavior. It seemed highly important, therefore, to find out whether psychotherapeutic procedures could be formulated in terms of the principles of behavior developed in the experimental laboratory. The significance of this problem to military psychiatry stems chiefly from combat psychiatry in which attention is paid primarily to current events and to performance rather than to the genesis of the symptoms and "feelings." The provision of an experimental method directly applicable to combat psychiatry would provide a useful tool for further study and improvement of the methods which have been found effective.

Phase I

In the initial phase of the studies under contract DA 49-193-2448 an attempt was made to analyze recorded and transcribed psychotherapeutic interviews in order to determine whether the course of the therapist-patient interaction could be described formally in the terminology developed in the course of laboratory studies of behavior using respondant and operant conditioning methods. In other words, did recorded interviews of psychoanalytically oriented therapy give evidence of such operations as extinction, positive reinforcement, fading, manipulation of schedules, negative reinforcement, and so forth. Several published interviews are available and were used for these initial surveys of the general problem. It rapidly became clear that some segments of the interviews could be identified as instances of operations in the verbal interaction which formally represented operations developed in laboratory studies. By far the greater part of the available recorded interviews, however, was not identifiable in operational terms. It appeared that either several different problems were being dealt with simultaneously in metaphorical form--such as, memories of recent or long past experiences and events--or sequentially repetitively and without definition or development. Whatever the basis, study of recorded interviews was not found economical.

Phase II

In the next phase* of the work two problems were approached. One was to develop a method which would yield data on psychotherapy more rapidly and in a manner in which the procedures could be replicated. The other was the study of the psychotherapeutic operation to determine what factor or factors resulted in the fact that a verbally mediated interaction in an office (or laboratory) resulted in modifications of total behavior in other situations.

Interview cubicles were constructed with one-way viewing screens. The psychiatrist and patient proceeded with the interview in the cubicle; the

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*Dr. Miles Miller was part of the team during this period.

psychologist observed and audited from behind the screen. The interview was tape recorded and the psychologist could dictate comments on the second track of the stereo tape as the interview proceeded. After two or three introductory interviews, the psychotherapist decided on the general plan for therapy and precisely defined the first problem to be dealt with. He also selected and stated the strategy he would endeavor to use in arriving at its solution. The arrangement of cubicles and organization of the work permitted a number of incidental observations, such as, the effects of vocal and gestural indications of interest on increasing the proportion of verbal behavior devoted to particular topics. In one case, for example, (a paranoid patient who tended to silences) the brightness of the light in the therapist's section of the cubicle was made contingent on his talking. This maneuver markedly increased his verbal output, which thus kept the therapist behind the viewing screen in view.

During this period a detailed study of verbal behavior was made, which demonstrated that it is operant behavior affecting both the speaker and the person or persons spoken to. It provides labels which implicitly communicate criteria defining objects, properties, acts, events, etc. Within the social group—which knows the language and the group mores-- it also identifies the respective uses, attitudes, responses, and so forth, of these objects, etc. Certain aspects of this work were presented in some detail at a symposium on The Disabled Reader: Education of the Dyslexic Child (1). The importance of clearer definition of the nature of verbal behavior stems from the fact that all psychotherapy relies heavily on verbal interaction and some therapists use language entirely, excepting for occasional vocal, facial and other somatic gestures. In this respect psychotherapy is formally identical with other education and modifies old repertoires or provides new ones. The subject matter, or content, of psychotherapy is interpersonal behavior, the mediating mechanism is the verbal and other symbolic interaction. (Since various modes of thinking are developed through life experiences with other people, the term interpersonal behavior may be used to include the covert "intrapersonal" phenomena of thinking, feeling and on.)

Phase III

The third and major phase of the research reported here was initiated after experience had shown that the basic principles were applicable in the therapy situation and that the clinical investigation of the application of these principles was feasible. In this third phase of the work Dr. Arthur Colman worked with the team and all professional members engaged in interviewing as well as in monitoring the therapy sessions. In general, the procedures used remained the same, namely, assessing the patient and his problem, deciding on an objective to be reached, planning the strategy, putting the plan into effect, and studying the course toward the proposed goal. Necessarily, as the work progressed with any patient strategies, plans and even goals had to be revised; but the clarity of the method, which permitted virtually day-to-day check on the course, facilitated the control function and seemed to save time. As different types of patients were seen and studied, the applicability of different strategies to different symptoms and syndromes could also be studied. It was also possible to note the effect on the therapist of different reaction patterns of the patients. The major findings obtained through the application of this method were published in several papers listed at the end of this report.

In the work described each patient served as his own control and no attempt was made to use the common statistical techniques of comparing the final results of large numbers of patients treated in different ways. There are too many significant differences between patients and between therapists to make such statistical studies useful, unless lack of facilities precludes more detailed studies. Relying on a fine-grained analysis, each step of our studies could be tested for its consequences and modifications then be made as indicated. By this procedure not only could the patient be better assisted to shape his behavior closer to his goal, but the therapist received immediate or very early information on the effectiveness or ineffectiveness of his maneuvers. The learning process was thus facilitated and the fine-grained analysis permitted study of separate facets of symptoms and their modification. This is of particular significance when treating patients whose sole resource for obtaining the interpersonal relationships - which, as persons, they require - becomes limited to interacting

with other people in a manner regarded as symptomatic of mental illness. Deprivation of response to the symptoms may be catastrophic. However, the symptom(s) may be replaced by more effective behavior, which is also more socially acceptable, if the probability of learning the latter is carefully increased.

The similarities between psychotherapy and operant conditioning are very striking. This is especially true if one considers the "hand-shaping" of behavior experimentally. Hand-shaping is often the experimental method of choice, especially in the early stages or when dealing with complex organisms. Not only does the experimental subject learn the predetermined behaviors, guided by the consequences provided by the experimenter, but the experimenter learns his role better, guided by the consequences represented by the improvements in the subject's performance. Further evidence for the basic similarity--in form, if not in content-- is provided by the extensive data on programmed teaching now being accumulated. Certainly the work which has been conducted in hospitals, correctional institutions and elsewhere on direct conditioning of those behaviors which are the referents of the language of verbal psychotherapy emphasizes the similarity of method and theory between the animal and human work.

Describing psychotherapy in the language developed in the experimental laboratory is more than a mere exercise in translation or verbal comparison of two sets of hypothetical constructs. The experimental language is a procedural one designed to operationally describe the form of the interaction and to discriminate the factors in the environment which are relevant to the course of the interaction. The operant procedure is unique, however, in that a critical indicator of the course of the behavior is built into the procedure as an inherent part. The information provided can then be utilised promptly to manipulate the environmental contingencies, etc., to facilitate learning.

As an example of the significance in practical work of the procedural terminology one may consider a common neurotic symptom, obsessional indecision. There is interminably repetitive, worrying talk, for, against and about some plan or proposition, but no decision unless by default with the passage of time. It is commonly said that this behavior is to avoid anxiety, which the

responsibility of making a decision would entail. Operationally, one may say the behavior is maintained by expectation of some aversive consequence. The consequences for the particular patient may now be examined and a rational approach developed to modify or change them, whereas the term anxiety refers to feelings or to some inferential construct, and hence provides no procedural guidance beyond indicating there are personal difficulties.

It may also be noted that, whereas the single common clinical term anxiety, which refers to an inferred state or a feeling, the relevant aversive consequence may be any one of a number of events. In other cases a single procedural term may cover several therapeutic terms. In this regard it is useful to differentiate topographic and functional categories of behavioral descriptive terms. For example, directing vision to writing on a page and moving the fingers along a line of braille print both result in reading and are maintained by reading. They are topographically dissimilar, but functionally the same. The same (topographical) gesture, however, may have quite different (functional) implications or consequences in different cultures. The functional terminology and vice versa permits a degree of communication between the clinic and the laboratory in psychiatry not attainable before. It also emphasizes the similarity (or formal identity) of psychotherapy and learning.

In applying the behavioral or operant paradigm to clinical problems it is necessary to keep several factors and steps in mind. A given behavior is defined by and is maintained by certain consequences. The consequences during early training need to be frequent and reliable. Later, some of the most stable schedules are maintained by randomly occurring consequences at infrequent intervals. Consequences are not reinforcing sui generis, but depend on the ecology of the organism for this property. These factors may be called potentiating variables. One may then say that a given behavior is reinforced and more likely to occur--i.e., behavior is guided--by the consequences in the presence of the potentiating variables. The common psychotherapeutic terminology would be that the behavior is motivated.

Things, events, sounds, etc. in the environment provide cues and signals

for certain behavioral responses and are often called stimuli. They are significant, however, for their discriminative functions, which identify the relevant objects, events, etc. and also the program of instructions appropriate to the situation. In the course of learning there are in addition the characteristics of the environment in which the learning takes place. These may be called the constant stimuli. Change in the latter is often disruptive of the course of the behavior, though the effect is likely to be transient. These three types of signals or stimuli may be referred as the Sd^D discriminative (dimensional), Si^D discriminative (instructional), and Sc (constant).

Applying the operant paradigm to clinical practice leads to a different procedure than the medical model. The latter calls for diagnosis of the condition and adoption of the preferred treatment for the "disease". Instead, since the functional "mental illnesses" are demonstrated through behavior, with the operant paradigm one looks for specific deficiencies in behavior, inappropriate forms of behavior, evocations of undesirable consequences due to a pathological environment (in which case the environment needs to be modified) and so forth. The deficiency syndrome is of interest in that the deficiency may be in certain skills and techniques, in the schedule of living, in the discriminative capacities and so on. Each would require a different program of learning for correction, although any one of these deficiencies may be critical in patients all falling in the same diagnostic category. Other maladaptive behaviors relate to the maintenance of programs by the consequences. The so-called psychopathic or asocial syndrome, for example, shows the control of behavior by immediate consequences rather than by delayed consequences. One sees this in the "hoodlum" group in prisons in contrast with the "professional" robbers, embezzlers, etc.

The referent behaviors changed by verbal psychotherapy vary widely. In many instances dealing very practically with a specific, quite limited problem (e.g., keeping household financial accounts accurately and up-to-date) is sufficient, when successful, to solve what at first sounds like extensive family problems. In many instances where the behavioral problems are diffuse

and involve a good deal of living, clearly defining one aspect and clarifying its relationships to the discriminative stimuli, the consequences and potentiating factors, etc., is sufficient to enable the patient to work out much or most of the other problems, at least to the extent that is necessary or relevant under the circumstances.

It was noted in the course of this work that the use of positive reinforcement by the therapist was usually limited to maintaining the course of the work. Only seldom was there opportunity to directly reinforce one or other of the referent behaviors. In this sense, verbal psychotherapy differs markedly from milieu therapy in which the referent behaviors themselves are reinforced, even if they are not verbalized. In verbal psychotherapy, however, the form of verbalization, the degree of detailed description, the selection of content, etc. can be directed by instructions, or by expressions of interest and so forth. In occasional cases there is sufficient gain in the fact of being "in therapy" that a low level of symptomatology is maintainedto keep the therapy going. Such reinforcement of symptoms by the therapy may be quite outside the awareness of the patient. This, of course, would be malingering if premeditation were shown.

The consequences which maintain the course of behavior may be regarded as the value system of the social group. Of course, the system changes over time with changing potentialities.

Potentiating variables include the therapist, his reputation, the institutional affiliations and so forth. In small groups and in closed or partially closed systems (jails, schools, wards, etc.) the emergence of a consensus on values, mores, objectives, etc. can be a most potent potentiating variable. The physical configuration of the environment, the <u>decor</u>, have been shown also to play measurable roles in potentiating different behaviors.

Discriminative stimuli can be identified in verbal psychotherapy and dealt with very much as in the experimental laboratory, by the use of positive and negative reinforcement, to sharpen the discrimination. Negative reinforcement may, at times, be preferable to the "errorless," but slower, fading technique. The latter, however, is likely to be less disrupting. In complex, but condensed, human interaction the therapist may want the patient to learn

to recognise certain aspects which he has been ignoring previously. Directly instructing him is often contraindicated, as it provides a verbal formula without knowledge of its derivation. The problem is analogous to the human experimental concept acquisition situation. In therapy it can be dealt with by positively reinforcing the desired data and interpretations and extinguishing procedures, as in "abstraction" conditioning in the animal laboratory.

The greater complexity and flexibility-- as well as the capacity to evoke previously learned repertoires - which verbal behavior provides, enormously increases the potential uses and misuses of direct verbal instruction. A great deal of verbal psychotherapy is thus necessarily concerned with learning more adequate use of our language, both semantically and syntactically. The use of analogies, similes metaphors, etc. permits one to deal with limited aspects of complex relationships. These forms of speech are ambiguous as to which of several referent behaviors they may be used to refer to and, in this sense, they may be regarded as highly condensed symbolic behavior. Their judicious use as instructions enables the speaker to introduce concepts which would otherwise sound out of place and be rejected without consideration. Similar effects may be obtained in some instances by using quite simple, general statements and relying on the patient to recognise the implications for the current problems he is dealing with. Patients can disregard the ambiguous or implied instructions, but if they take them up any useful interpretation can be positively reinforced and other interpretations disregarded and so extinguished.

Since many discriminative stimuli (Sd^Ds) are complex, they will evoke different classes of responses (R_s) when accompanied by different instructional stimuli (Si^Ds). For example, airplanes may be classified according to type, size, cost, ownership, purpose, etc. These complex discriminative stimuli are, in a sense, ambiguous. They may be indicated by S*.

Given an Sd^D any one of several Rs may be evoked. Several different Sd^Ds may evoke the same R. A child running into the street, the traffic light turning red, an obscured stop sign suddenly coming into view may all lead to violently stopping a car. The latter may be accomplished, however, in several

ways, singly or combined, such as, pressing the foot brakes, pulling the hand brake, turning off the ignition, forcing a sideways skid, running the car into a tree, etc. One may learn such repertoires by mimicry at the S^D "Do as I do," or, much more economically, from verbal instructions, "Do as I say..." The repertoires of one organism may be thus made available to another. The variety of S^Ds leading to the same R and of Rs leading to the same end state justify the concept of stimulus and response classes. A patient may have difficulty with certain responses, but be able to use another of the same class to reach the desired end state. Or, a patient may fail to chain a series of stimulus response steps into an effective sequence. Thus, a psychopath is said to require immediate gratification. However, in some other field he can carry out a long plan and tolerate delay without difficulty, (as in casing a joint, laying a plan, awaiting the opportunity, etc.) Shift from one content to another is often more readily attained than building new chains in therapy.

During the later phases of this project attention was directed chiefly to two aspects of psychotherapy, namely, the nature and use of metaphor and the question as to what maintains symptomatic behavior.

In psychotherapy metaphorical verbal behavior may be defined as that in which the verbal referent(s) of the metaphor are other than the referent behaviors which need change. Thus, a teenager who threatened suicide spoke of life as a bubble on the sea of eternity. That was all he felt he was. It developed on further probing that none of his accomplishments were recognized or given attention at home. When the metaphor was so interpreted it, together with the suicidal preoccupations were dropped. Teaching patients to recognize behavioral problems in operational terms presents the data in manageable form, whereas the often dramatic, condensed symbol of the metaphor may be overwhelming or humiliating.

It is rarely useful to continue talking with a patient in his metaphorical idiom and quite useless merely to deny the metaphorical statement. The former may imply the problem behaviors cannot be directly dealt with or one may later find the metaphor included other, quite different referents than those at first

apparent. Mere denial of a delusion (always metaphorical verbal behavior) implies a denial of the patient's problem and simultaneously confirms the delusion as a verbal fact. The resulting confusion may become extraordinarily difficult to clarify.

Occasionally the therapist may introduce a simple metaphor to clarify limited, relevant aspects of a principle. For example the game of tennis, in which each player's moves are obviously controlled by where his opponent succeeds in placing the ball, can be used to clarify more obscure interactions in a family.

It was also found that much of the patients' references to early life events and experiences were less significant as historical data than as metaphorical verbalization of current problems. Treating them in this manner often clarified difficulties about which practical corrective measures could be taken.

Through longitudinal study of the programs of therapy developed during the course of this work by the psychotherapists the educational nature of the work became increasingly evident. It would appear feasible to develop programs for considerable segments of verbal psychotherapy, much as behavioral problems are programmed in the experimental laboratory and educational courses have been programmed in a number of schools.

It was also demonstrated that there are advantages in looking carefully at the consequences of disturbing behavior to identify those that seem to maintain the behavior. These consequences can then be given for more acceptable behavior or the patient can be taught more effective ways of getting the consequences he needs. This approach directs attention to positive features to be attained, it can be operationally described and replicated and it does not require the assumption of an intervening construct, such as, emotion, instinct, anxiety, etc., as an explanation of the symptomatic behavior. It thus differs from the classical approach which assumes some derived force, e.g., anxiety, which then causes the symptom. Instead, it regards the disturbing behavior as one adaptation to the environmental contingencies. The disturbing adaptation is accompanied by disturbed subjective phenomena. By attention to

the environmental contingencies and the needed consequences more effective patterns of interpersonal behavior can be taught and the syndrome changed, including change in both its behavioral and subjective aspects. It is also possible to teach patients the principles involved so they can apply them themselves in a manner similar to that most so-called normal people use in ahe greater part of their lives.

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